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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,893	12/22/2004	Hannu Koivikko	18514	2864

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EXAMINER
BRUNSMAN, DAVID M

ART UNIT	PAPER NUMBER
1755	

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DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/518,893	KOIVIKKO ET AL	
	Examiner	Art Unit	
	David M. Brunsman	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20041222*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 includes recitation of trademarks. A trademark indicates the source of a material but, not its composition or structure as it may change at the whim of the trademark owner. The terms "high" and "type" render claim 22 indefinite. There is no standard to compare "high" to determine its meets and bounds. There is no definition to determine the characteristics necessary to qualify as a "type".

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

> Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 4-8, 10-19, 21-28, 32-38, 44 and 45 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 24-35, 37, 38, 41, 45 and 47 of U.S. Patent No. 6872316. Although the conflicting claims are not identical, they are not patentably distinct from each other. The reference claims recite a process of producing xylose from an enzymatic and acid hydrolysis of a xylan containing vegetable material by subjecting it to nanofiltration to produce a permeate enriched in

xylose and a retentate enriched in oligosaccharides and hexose sugars. One must consult the specification for the definition of the materials used and produced by the claimed process. The hydrolysate employed is a biomass hydrolysate obtained from spent liquor from a pulping process or a xylose containing fraction chromatographically obtained therefrom. The retentate formed including hexose sugars as well as xylo- di and oligosaccharides. Claims 24 recites a nanofiltration pressure of 10-50 bar, claim 25, 15-35 bar. Claims 26 and 27 recite temperatures of 5-95 C and 30-60C. Claim 28 recites a flux of 10-100 lmh. Claims 29-31 recite molecular weight cut-offs of 100-2500D, 150-1000D and 150-500D, respectively. Claims 32-38 recite structural limitations of the nanofiltration membrane identical to instant claim 16-19, 21 and 22. Claim 41 recites repeating the nanofiltration at least once. Claims 45 and 47 recite pre and post treatments of ion exchange, ultrafiltration, chromatography, concentration, pH adjustment, filtration, dilution, crystallization, reverse osmosis and combinations thereof.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-7, 9-26, 32, 33, 39, 41, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5869297.

The reference teaches a process of purifying dextrose obtained by an acidic enzymatic hydrolysis of starch to form a feed stream comprising dextrose and di and tri oligomers thereof, nanofiltering the stream using a sulfonated polyether sulfone membrane such as Desal™ 5, having a molecular weight cut-off of 200-300D, at a temperature of 45 C, a pressure of about 30 bar and a flux of about 6-20lmh, to produce a retentate rich in the higher molecular weight compounds and a permeate of substantially pure dextrose. See examples 1-4 and the descriptions of nanofiltration membranes at column 3, line 43 through column 6, line 21.

Claims 1, 3-7, 10-23, 33, 35, 43-45 are rejected under 35 U.S.C. 102(a or e) as being anticipated by US 6406546.

Example 1 of the reference teaches a process for separating sucrose from invert sugar (dextrose + fructose), obtained from mother liquor of a crystallization stream, including a prefilter step using ultrafiltration wherein the feedstream is separated by a Desal ™ 5 nanofiltration membrane having a cut-ff of 150-300D operating at about 65 C, 35 bar and 14lmh, to produce a retentate of the higher molecular weight sugars and a permeate rich in fructose that may be further treated by reverse osmosis. Figure 5 shows the nanofiltration system using repeated filtration steps.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 8, 27-31, 34-38, 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5869297, in view of applicants admissions in the specification with respect to the background art.

Claims 2, 8 and 34 -38 differ from the 297 patent in that they recite separation of xylose. The patent teaches reducing monosaccharides may be separated from higher molecular weight sugars and dimers and trimers thereof using nanofiltration. The similar molecular weights of each are evidence that the process of the 297 patent would be expected to operate similarly well to separate xylose from its dimers and trimers. The specification admits at page that it is known to obtain a xylose feedstream from the chromatographic separation using a column packed with cation and anion exchange resins in monovalent or divalent metal form (see instant claims 27-31) of spent sulphite liquor and the mother liquor from the crystallization of xylose. It would have been obvious to one of ordinary skill in the art to employ the xylose feeds of claims 2-8 and 34-38 for those reasons. Instant claim 32 appears to simply recite the most common commercially available forms of ion exchange resins. It would have been obvious to one of ordinary skill in the art to employ them for that reason.

Page 1 of the specification admits it is known to obtain a fructose stream from the chromatographic separation of hydrolyzed and isomerized saccharose. It would have been obvious to one of ordinary skill in the art to employ a fructose stream from the chromatographic separation of hydrolyzed and isomerized saccharose as recited in claims 40 and 42 for that reason.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Brunsman whose telephone number is 571-272-1365. The examiner can normally be reached on M, W, F, Sa; 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1362. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David M Brunsman
Primary Examiner
Art Unit 1755

DMB